- Draft -

MULTIMODAL CONCURRENCY STUDY

(2SHB 1565, 2005 Session)

Current Concurrency Process
Four King County Cities

Task 3: Technical Memo

June 12, 2006

by

Mark E. Hallenbeck, TRAC-UW
Dan Carlson, Keith Ganey, Evans School of Public Affairs
Anne Vernez Moudon, Luc de Montigny, Department of Urban Design and Planning

Washington State Transportation Research Center (TRAC-UW)
University of Washington, Box 354802
University District Building, Suite 535
1107 NE 45th Street
Seattle, WA 98105-4631

Prepared for the
Puget Sound Regional Council

Funded by the Washington State Legislature

TABLE OF CONTENTS

CURRENT CONCURRENCY PROCESS

FOUR KING COUNTY CITIES

Introduction

This report is intended to fulfill the requirements of Task 3 of the Multi-Modal Concurrency Study being performed for the Puget Sound Regional Council (PSRC) by the Washington State Transportation Center at the University of Washington (TRAC-UW).

The report describes how four cities in King County have implemented concurrency and how they approach its application. It summarizes their technical procedures, the standards they have adopted, and where concurrency fits into their planning process. The four cities examined are Bellevue, Redmond, Kirkland, and Issaquah.

The four cities participating in this project use concurrency determination procedures that are similar in style and structure but that differ in technical execution. All four cities currently use a technical process that is driven by roadway level-of-service and that focuses primarily within local jurisdictional boundaries. (However, these boundaries can extend to neighboring jurisdictions when the development is located close to a border or causes obvious vehicle volume increases on roads in a neighboring jurisdiction.) Table 1 summarizes the concurrency procedures used by the four cities.

Table 1: Summary of Concurrency Procedures

City	Citywide Approach	Model Used	Project-Specific Approach	LOS Standard is Based On	Roadway Facility Type Used	Methodology	Time Period Used	Zonal v/c Standards Used?	Zonal v/c Ratios Accepted	Specific Facility Exemptions Allowed?	v/c Intersection Exceptions Allowed?	Multi-Modal?	Other
Redmond	Four-step model	BRK	ITE Trip Generation + Current Conditions	Roadway v/c	Intersection	Circ. 212	1 hour	Yes	0.85 – 0.95	Yes	Yes	Partly	Sum v / Sum c not average of individual v/c
Kirkland	Four-step model	BRK	ITE Trip Generation + Current Conditions	Roadway v/c	Intersection	Cir. 212	1 hour	Yes	0.98 – 1.116	Yes	Yes	Partly	No intersection can exceed a v/c of 1.4
Issaquah	Four-step model	T-Model	ITE Trip Generation + Current Conditions	Roadway v/c	Mid-block screenlines	(segments)	1 hour	Yes	0.85 – 3.18 (no zonal standard, only segment specific)	Yes	Yes	Partly	Additional check for intersections exceeding baseline by more than 0.3 More direct incorporation of missing roadway features in computation of "c"

Bellevue	Four-step model	BRK	ITE Trip Generation + Current Conditions	Roadway v/c	Intersection	HCM	2 hour	Yes	0.80 – 0.95	Yes	Yes	Partly	No. of intersections allowed to exceed standard changes from zone to zone

In all four cities, roadway level-of-service is computed as a function of roadway use (vehicle volume) and capacity. In addition, the level-of-service that is acceptable without violating the concurrency standard changes with geographic location within each city. Three of the four cities has adopted LOS standards that vary by geographic zone, with better levels-of-service required in some zones (usually residential areas) and more congestion allowed in other zones (usually those that are heavily commercial). Issaquah's LOS standards vary by arterial street classification, rather than by zone.

All four cities use two different basic sets of procedures for computing roadway level-of-service for determining transportation concurrency. One method is based on classic four-step urban transportation modeling, while the second is based on physical vehicle volume counts and predicted trip generation for given developments. In both cases, vehicle volumes (estimated or measured) are input into algorithms that predict level-of-service.

These equations are taken from various editions of the Highway Capacity Manual and result in volume to capacity ratios (v/c) that are compared against standards adopted by the respective jurisdictions.

A brief description of these two types of procedures is presented below.

Four-Step Modeling

For longer term forecasts each of the four cities uses its four-step planning model to forecast traffic conditions. Inputs to the four-step model are current land uses (primarily households and employment); the current transportation system; forecast changes in households, employment, transportation system improvements; and the fraction of trips made during the peak period. The modeling process computes trips generated (by mode), the approximate origins and destinations of those trips, and the transportation facilities they use. From this process, the model computes roadway link-specific vehicle volumes, which can be compared with roadway capacity to estimate roadway level of service. (Cities may also further manipulate these outputs (Bellevue is one) to better reflect specific turning movements, and to account for limitations in the road network detail maintained in the four step planning model roadway assignment.)

For predicting future conditions, the four-step model is calibrated against current conditions and then used to forecast changes in v/c ratios at roadway sections / intersections of interest. Model calibration is usually updated annually. Calibration is adjusted by refining model coefficients so that predicted roadway volumes match measured volumes for major facilities within the city. Three of the cities use the same basic four-step model (the BKR model), and jointly participate in the previously described annual update process, while Issaquah uses a slightly different model.

All four cities use forecast control totals and system level inputs that are provided and/or agreed to at the regional level through the Puget Sound Regional Council (PSRC). PSRC also provides each city with a common set of regional transportation system improvements for specific forecast years. Each city notifies PSRC of transportation system improvements occurring within its boundaries so that these improvements can be passed along to other jurisdictions. PSRC also participates as a technical peer reviewer in critiquing the BKR model during the annual update process.

It is important to realize that the modeling process is not sensitive to a wide variety of factors that affect mode choice or vehicle volumes. For example, because the fraction of trips taken during any given period is an input to the modeling effort, shifts in the time of day during which trips take place that are caused by congestion are not accounted for directly.

In addition, the BKR mode split model used by three of the jurisdictions applies traffic analysis zone-specific transit fares. This means that the effects of building or development-specific travel demand management actions, such as subsidizing transit passes for employees or differential SOV parking costs, can not be directly modeled.

To account for these types of model limitations, the cities rely on their annual model validation and the resulting adjustments to the model calibration.

Direct Measurement Plus Generated Trips

For concurrency calculations estimated in response to specific development proposals, each city directly measures current vehicle volumes and then adds vehicle volumes predicted for the proposed development to those conditions. "Predicted vehicle volumes" for a given development are usually computed with the ITE Trip Generation rates. ITE rates are often modified to reflect promised travel demand management efforts or other mitigating circumstances.

As a result, the exact size and timing of the vehicle volumes generated by a new development are often the subject of negotiation between city staff and the developer, as relatively little standardized guidance is available on the effect of the different travel demand management options available to a developer. For example, a company constructing a new building might state that its staff will be working four 10-hour shifts a week, rather than five 8-hour shifts, with shifts starting at 7:30 AM and ending at 6:00 PM. This would be grounds for reducing the number of "peak hour" trips generated by this development, since many of the work trips would occur before the morning peak hour and after the evening peak hour. Exactly how significant a reduction in “peak hour” trips such a proposal might be worth would be the subject of negotiation.

Differences in Concurrency Procedures

While all four cities use the basic analysis process described above, there are a number of technical, procedural, and conceptual differences in their respective concurrency procedures. These differences reflect the four cities’ different roadway conditions, their different levels of development, the roadway attributes they are trying to encourage, and the professional choices made by different staff charged with developing their respective concurrency systems.

All four sets of concurrency procedures are acceptable reflections of city-specific interpretations of how concurrency is meant to be used to help meet the development goals of each city.

Differences observed in the four approaches to level of service calculation include the following:

- the duration of the “peak period” examined
- the mechanism used to compute “capacity” on roadways
- the specific roadway attributes examined
- the specific mathematical equations/algorithms used to compute level of service
- the mechanism used to combine specific location level-of-service into a figure representative of the entire zone
- the v/c or LOS standards actually adopted
- exceptions allowed by the different cities to their basic v/c standards.

Peak Period Examined

Three of the four jurisdictions measure or predict vehicle volumes for a single PM peak hour to compute concurrency. At one time, Bellevue also used a 1-hour time period, but in 1998 it switched to using a 2-hour period. Use of a 2-hour period is appropriate where "rush hour" volumes are affected by significant peak spreading that results from capacity constrained regional roadways. Use of a 1-hour peak is generally a better assumption on facilities not subject to significant, extended peak period traffic volumes. (Where peak spreading is not significant, a 2-hour peak period is likely to result in a lower v/c ratio. This may or may not be an acceptable outcome of the analytical process. For example, the 2-hour period can be used to reflect a city council decision that considers short duration peak period traffic congestion an acceptable cost of development and considers congestion significant enough to limit development only when it persists for well over an hour.)

Calculation of Volume to Capacity Ratio

The actual calculation of the volume to capacity ratio also differs from city to city, in part because of the wide variety of factors that can be included in the determination of the capacity and volume estimates provided by both model output and measured ground counts. Basically, each city has selected a slightly different set of procedures to trade off simplicity (and thus smaller resource requirements) against the precision and accuracy of the results.

Among the factors that can affect the calculation of v/c ratios are

- the type of roadway segment selected for analysis

- the specific aspects of roadway geometry that are included in or excluded from the capacity calculation
- the duration of the period used in the calculation (1 hour or 2 hours)
- the expected variations in traffic volume during the time period being analyzed.

The four cities are all using professionally acceptable methods of measuring v/c, which itself is a well accepted mechanism for estimating roadway level-of-service. No one method of computing v/c is especially "better" than the others, particularly since all of the methods used are based on the same concept: that level of service can be predicted by the metric vehicle volume divided by roadway capacity.

Issaquah's approach to concurrency differs somewhat from the other three jurisdictions in that it does not restrict itself to intersection locations for computing level-of-service. Instead, the city staff have identified a set of "critical links" (mid-block) for computing concurrency. This approach is certainly acceptable from a technical perspective and makes considerable sense, given the different characteristics of much of the roadway system and current land use in Issaquah in comparison to the other three cities. A consequence of choosing mid-block locations for calculation is that Issaquah uses a different methodology for computing v/c than the other three cities.

In addition, during the project team's review of procedures, Issaquah was the only city that specifically discussed incorporating the presence or absence of minor geometric features (for example, sidewalks) in the calculation of facility capacity used in the concurrency process. (However, the procedures adopted by Bellevue also provide for inclusion of roadway features.) These features are often, but not always, important links in a city's multi-modal transportation system infrastructure.

By directly incorporating roadway features into its capacity calculations, Issaquah has created a mechanism to fund these types of desired improvements. The intent was that in some cases a developer could bring a facility (or zone) into compliance with transportation concurrency standards by funding these minor roadway improvements, thereby increasing roadway capacity and lowering the v/c ratio for that segment to an acceptable level. This approach is a perfect example of how the concurrency calculation process has been tailored to fit specific jurisdictional needs and conditions.

In reality, all v/c-based estimations of LOS are reasonably similar. All are based on work published in the Highway Capacity Manual (HCM.) For intersection-based computations, an extra step is required to determine the "critical" traffic volumes from the data submitted for each of the intersection approach legs. ("Critical" is basically defined as "the largest among competing movements.") These critical approach volumes are then compared with available capacity, and the resulting v/c ratio is used to estimate level of service.

The more "common" of these approaches is based on TRB Circular 212, published in 1980. This approach simplifies the capacity calculation by removing much of the detail involved in that computation. (The "detail" includes elements such as signal timing information and geometric details such as lane width, or the presence of on-street parking.) This lack of detail reduces the time and data needed to calculate LOS, but it results in some loss of precision in the v/c calculation. These results, however, are still a reasonable measure of level of service if the input volumes are accurately estimated.

This level of accuracy is particularly acceptable for forecast conditions where many intersection details (such as signal timing or precise turning movement volumes) are not known or readily available to the person performing the calculation.

If a more precise estimate is desired, procedures published in the 1994 Highway Capacity Manual[1] can be used. These procedures allow the inclusion of considerably more detail in the calculation of both volume and capacity. The result is a more realistic estimation of v/c, but one that requires both more data and more effort to perform. (Note that the results from this procedure are only more "accurate" than the Circular 212 computations when the more complex inputs are accurately tracked by the city and used within the process.) Perhaps more important than whether the 1994 HCM procedures are more accurate than the Circular 212 procedures is the fact that use of the 1994 HCM allows a city to incorporate the effects of specific geometric features into its capacity calculations and thus account for these types of improvements in its v/c computations.

However, these minor computational additions are not a cause of significant differences in how concurrency is applied from one city to the next. In fact, in all probability, the differences measured by comparing the computational outcomes are small relative to the error inherent in measuring or predicting vehicle volumes at that location. For example, if vehicle volume data are collected at two significantly different times of the year (e.g., mid-summer or early December) in a commercial district, and those data are used to compute v/c, the differences in computed v/c for the different data collection efforts are likely to be greater than the differences between results obtained from using the Circular 212 procedures versus the 1994 HCM method.

[1] Note that the HCM procedures used for mid-block computations by Issaquah will not be the same HCM computations used for intersections by Bellevue. Furthermore, these mid-block computations have no direct counterpart in Circular 212.

Similarly, different assumptions that are used when inputs to both procedures are computed can have more significant effects on the v/c computation than the differences in the procedures themselves. For instance, in general, the 2-hour approach Bellevue currently uses tends to produce slightly lower v/c ratios than the 1-hour approach it previously used. (This is because 2-hour peak period volumes tend to be slightly lower relative to capacity than 1-hour peak period volumes.) However, also important in the 2-hour to 1-hour comparison is Bellevue's choice to select a peak hour factor[2] of 1.0 instead of the 0.95 used earlier. The change in peak hour factor most likely changes estimates of traffic volumes as significantly as the shift from a 1- to 2-hour period.

Level-of-Service Standards

Despite the effect of various assumptions used in developing concurrency calculation inputs, the biggest difference in how the four cities determine concurrency is in the specific "standards" each has adopted. As with the v/c calculations themselves, there are both similarities and differences in how each city has established concurrency standards.

Three of the four cities approach concurrency zonally. That is, they allow different levels of congestion in different geographic regions within their city. The level-of-service standards are all expressed as v/c ratios and vary from geographic sub-area to geographic sub-area within each jurisdiction. Issaquah's LOS standards vary by arterial street classification, rather than by zone. However, in all four cities, more congestion is

---

[2] The "peak hour factor" is an adjustment made to hourly traffic volume statistics to reflect the fact that traffic volumes within an hour long period are not uniform. A smaller peak hour factor represents a less uniform traffic flow and will result in a calculation of more congestion than a larger peak hour factor.

accepted in predominately commercial areas, and less congestion is accepted in primarily residential areas.

These geographic differences are the most common way that cities in the region are trying to encourage growth in urban centers. By allowing more congestion in urban centers than in non-center areas of their cities, the city reduces the cost of traffic mitigation in those geographic areas designated to receive additional growth.

In addition, each city has created a list of “exemptions” or “exceptions” for specific types of developments that are permitted regardless of the calculated level of service. These exemptions involve facilities viewed as providing far more “public good” than any resulting loss that might result from an increase in traffic congestion caused by the new facility. A good example of such a facility would be a new fire station.

While the same basic process is followed for setting standards, there are differences among the four cities. The most significant difference is in the allowable average v/c ratio within a zone. Kirkland allows average v/c to reach 1.16 in one zone, while Bellevue’s highest allowable v/c is 0.95. The next differential is the specific list of exempt facilities accepted by each city.

In addition to exempting specific types of developments, each city allows a specific number of locations to exceed the adopted v/c standards as long as the zone average itself does not exceed standards. The number of these permissible “exceedances” varies from zone to zone, as well as from city to city. Issaquah allows five exceedances citywide. Kirkland allows between two and seven for different zones within the city; Bellevue allows between two and ten; and Redmond allows any number of exceedances, so long as the average v/c for the zone remains below the adopted standard for that zone.

The UW project team's general opinion is that the differences in both the mechanisms used to compute concurrency and the standards against which the results of those computations are compared are a direct result of political processes and the specific objectives that each jurisdiction is trying to accomplish. While it might be possible to "force" the adoption of a single process and/or standard, this would meet considerable political resistance, primarily because it would limit the ability of the individual jurisdictions to accomplish their local objectives.

City-Specific Approaches to and Uses of Concurrency

Technical variations in how concurrency is computed and the selection of standards against which those results are compared are not the only concurrency process differences between the four cities. In many respects, how the four cities apply their concurrency system also differs. Each city attempts to use concurrency to address their local concerns, and since those concerns vary (as do the local land use / transportation circumstances), the outcomes from the concurrency process also vary from city to city.

Many of these differences in "outcome" from the concurrency process stem from the political climate within each city, from that city's geographic location relative to regional transportation movements, and from the existing level of urban development and transportation infrastructure development within each city. (Also note that the geographic location and current level of transportation and land use development directly impact the political climate.) These differing background conditions result in very different local attitudes towards growth, the acceptability of traffic congestion, and the acceptance of widening roadways in response to traffic congestion. These differences are reflected both in the differing standards (described above) that have been adopted by the four cities, and the ability or willingness of the cities to use their concurrency regulations to require additional developer mitigation as a precursor to permitting those developments.

Of the four cities participating in this study, the two most “extreme” cases of differences in application of concurrency are Kirkland and Issaquah. Kirkland is a “more established” city, has relatively little undeveloped land, a well defined land use pattern, and (with the exception of I-405) moderate pass through regional traffic. Issaquah has considerable undeveloped land, in many ways is still establishing its land use patterns and expected levels of density (in part because of the amount of undeveloped land still available), and considerable pass through regional traffic especially from the north and south (in addition to I-90.)

These differences are reflected in how the two cities approach concurrency. Kirkland uses its land use plan (for which there appears to be broad public acceptance) to determine demand, compares that to the transportation system it is willing to provide (which has basically already been established), factors in some expected pass through traffic, and sets its concurrency standards as being equal to the expected LOS that results from these assumptions. They also have explicitly considered the effects of regional traffic, both incorporating language in their comprehensive plan that it exists, and is beyond their control, and in selecting the number of LOS standards exceptions they allow per zone. (That is, the number of allowable LOS exceedances appears highly correlated to the number of intersections where regional pass through traffic could become an issue.) Only development that departs from these accepted/expected conditions “runs afoul” of concurrency.

Issaquah entered into concurrency with a residential population that was not at all happy with the state of the local transportation system relative to the existing land use, let alone the prospective transportation system performance that would occur given expected growth. There is considerable debate amongst various factions in the area about the amount, location, and style of development that should be permitted, as well as the location, size, and design of transportation system improvements.

Consequently, the Issaquah concurrency plan is not based on "implementing the agreed upon development plan." Instead, the concurrency standards appear to have been developed and adopted specifically in response to the concurrency requirements of the Growth Management Act.

The land use assumptions in the Issaquah comprehensive plan do not appear to directly drive their transportation system plan, and do not appear to have been a major factor in the selection of their concurrency standards. Land uses are not mentioned in the transportation vision and values section of the comprehensive plan.

The concurrency standards adopted by the City are an excellent compromise between those advocating growth and those protesting against the negative effects of that growth. They accurately reflect the political desire to allow growth, but to mitigate the effects of that growth on traffic congestion. The standards themselves can be summarized as "new development won't make the transportation situation worse than it already is." Issaquah staff characterize their approach to concurrency not as a constraint on achieving the comprehensive plan itself, but as a constraint on the *timing* of when those planned improvements occur.

The problem Issaquah has is not with this approach to concurrency, but with the fact that Issaquah lacks the ability to apply the same standards to regional trip making, and/or to obtain the mitigation necessary to compensate for the significant growth in regional trips that pass through the City. The growth in regional traffic has caused a number of concurrency exceedances, and consequently limited the City's ability to permit local land use development. This situation is exacerbated by public resistance to significant increases in roadway lanes in key areas, as well as the cost (financial and otherwise) of those capacity increases. As a result, the concurrency check "we won't let growth make things worse" frequently prevents even desirable growth (for example development that reinforces the traditional "main street" town center) from occurring in the City.

Bellevue and Redmond have approaches to concurrency that fall between the extremes of Kirkland and Issaquah. In many respects, Bellevue and Redmond are more diverse cities. This diversity tends to make both the public attitude and city decisions more like Kirkland in some areas and more like Issaquah in others.

Both cities have adopted approaches to concurrency that start with determining their constituents "acceptable levels of transportation system performance" rather than letting adopted land uses and transportation systems plans from the comprehensive planning process drive the LOS standards determination, or by adopting a standard aimed at preventing degradation of the current conditions.

In addition both cities appear to have focused their concurrency process on ensuring the connection between <u>local</u> land use and <u>local</u> roadway level of service. Neither city appears to have adequately anticipated the effects of (or their lack of control over) regional traffic as directly as Kirkland. As a result, both now share a significant concern about losing control of local land use decision making and permitting because continued increases in regional pass through traffic on city streets are resulting in roadway level of service measurements approaching or exceeding adopted standards. This results in conflicts between two desired goals, adopted and desired growth and adopted and desired roadway system performance.

As in Issaquah, concurrency problems in both Bellevue and Redmond are primarily a function of regional traffic growth. Where desired development is permitted by the adopted standards, "concurrency works." Where land use intensity permitted in the comprehensive plan causes traffic to exceed adopted standards the "concurrency system needs to be fixed."

Where both cities differ most strongly from Issaquah is in how closely tied to their comprehensive plans they have made concurrency. In both cities the comprehensive plans demonstrate considerable linkage between accepted land use, the planned transportation system, and the adopted concurrency standards. Increases in the intensity of adopted land uses correlates strongly with an increase in allowable traffic congestion. In addition, both cities were able to adopt LOS standards that allowed for both growth, and some degradation in traffic congestion. However, unlike Kirkland, the plans for these cities do not appear to acknowledge the full effects of regional traffic on the cities' ability to meet both land use growth and transportation level of service goals, although in Bellevue's case, language has been added to the comprehensive plan that specifically discusses the need for increase state route capacity to provide for regional growth.

It is unclear from our review where the disconnect between acceptable land use, acceptable traffic congestion, and the reality of regional traffic is occurring. It may be because regional trip making is not adequately incorporated in the planning process. It may be that the adoption of LOS standards is sufficiently independent from the adoption of land use plans that the public does not realize the mutually exclusive nature of some of their adopted plans and standards. It may also be simply that regional trip making is growing more quickly than anticipated.

In general, citywide, Redmond's standards allow more growth than Bellevue's. Redmond's approach to LOS standards also facilitates their decision to use concurrency as a mechanism to help generate funds for transportation system improvements to mitigate the negative impacts of development. However, as opportunities to add capacity begin to run into local opposition (for example, in Redmond's Grasslawn neighborhood) Redmond is likely to begin to have more concurrency related problems such as those faced continually by Issaquah.

Cooperation Between Cities

While the focus of all four cities' concurrency programs is on the roadway conditions within each respective city, each has recognized the fact that concurrency's problems and solutions stretch across jurisdiction boundaries and thus require multi-agency cooperation. Within the four cities, there are two notable efforts at managing growth impacts across jurisdictional boundaries: the Bellevue Redmond Overlake Transportation Study (BROTS), and the Issaquah/King County reciprocal inter-local agreement. Both of these efforts deal with what might be called the "near local" impacts of growth across jurisdictional boundaries.

With BROTS, Bellevue and Redmond have worked jointly to plan and fund roadway and other mobility improvements in the Overlake area and on the major arterials that serve Overlake development. In this case, most of the development is occurring within Redmond, but significant impacts are occurring on arterials in Bellevue. Through the BROTS agreement the two cities have worked together to adopt growth targets in the Overlake area and to fund the transportation improvements (in both jurisdictions) needed to accommodate that growth. Thus, developer fees generated in Redmond are used for mitigation in Bellevue, and the two cities work together to identify and plan those improvements.

Similarly, Issaquah and King County have signed an inter-local agreement that allows each jurisdiction to collect two sets of impact fees for developments whose impacts cross jurisdiction boundaries. Issaquah collects the King County fees needed for mitigation for development occurring in Issaquah (as well as fees for Issaquah), and King County does the same in reverse. These fess are then transferred to the appropriate jurisdiction to help fund the needed transportation improvements.

In addition to these development impact efforts, the Bellevue Kirkland Redmond four-step planning model (the BKR model) is a good example of the cross-jurisdictional effort that is required to address the more regional problems associated with concurrency. While the BKR model does not lead directly to better multi-agency growth management within the concurrency legislation framework, it is an important step in the planning process needed to support such an effort. It incorporates many of the necessary data elements, as well as requiring considerable coordinated planning effort from the three cities. The BKR modeling effort also provides both a forum for growth planning (i.e., a review of where growth is occurring and what transportation improvements are planned) and a means for analyzing the multi-jurisdictional effects of those land-use and transportation system changes. Lastly, the use of a common modeling system also provides a large degree of consistency in the analytical methods that serve as input to the concurrency calculations.

Answers to Specific Task Questions

How level-of-service (LOS) is defined and measured, and data that are required

See pages 2 – 6 in the report. Table 1 (page 2) includes a summary of the Concurrency procedures.

How concurrency is administered, exemptions allowed, and mitigation options.

See pages 2 – 6 for descriptions of how the transportation concurrency process is performed. See pages 11 – 13 for descriptions of how exemptions are determined and applied. Pages 13 – 18 describe why there are differences between procedures followed by each city. In all cases, mitigation for concurrency level-of-service failures is a function of how and why the adopted level of service standard has failed, and what actions can be performed by the developer (within the bounds of nexus) that will bring the city back within compliance with those standards. In general "mitigation options" given to developers are simply the funding of specific currently unfunded capacity improvement projects.

How travel demand management (TDM), transit, carpools, non-motorized, or other forms of transportation are considered in addition to auto travel.

See the discussion of mode split on pages 3 – 6 above. Also see the discussion of how procedures for computing volume/capacity ratios differ from one city to another (pages 7 – 11.)

In summary, the only statistics used in all four cities for computing the "adequacy of existing transportation facilities" for concurrency purposes involve roadway performance. Thus, non-single occupant vehicle (SOV) travel and efforts (such as TDM) that promote non-SOV travel are only considered by the concurrency process in terms of the number of vehicle trips they remove from the roadway. When forecasting future travel conditions, this process is part of the standard mode split process. When performing development permit reviews, the effect of TDM programs and other inducements for using non-automobile traffic is negotiated between the city and the developer, and the resulting trip reduction factor is then applied to the number of peak hour/period vehicle trips that development is assumed to generate.

How concurrency requirements are tailored to address the various development objectives in defined sub-areas of the city.

See the subsection "City-Specific Approaches to, and Uses of, Concurrency" on pages 13 – 18. Also see the subsection "Level-of-Service Standards" on pages 11 – 13.

In summary, the entire concurrency process has been structured by each city to meet their unique political requirements. This includes the mathematical technique used to define level of service, the time period being analyzed, the mitigation that can be provided by developers, and the actual level of service standards adopted.

<u>How concurrency requirements are tailored to address travel during peak versus off-peak periods.</u>

Off-peak travel is not considered in any of the examined concurrency systems.

<u>How the concurrency program is coordinated with adjacent jurisdictions.</u>

See the subsection "Cooperation Between Cities" on pages 18 – 20.

<u>How the concurrency program relates to mitigation requirements, impact fee structure, and public investment strategy.</u>

Concurrency mitigation (if required) is in addition to other impact fees adopted and implemented by these cities. In all four cities, all developers are required to pay transportation impact fees based on the size, location, and nature of their development. However, if the development is not otherwise exempted from transportation concurrency <u>and</u> the adopted level-of-service standards are not met, <u>and</u> the development will generate some vehicle traffic that will use the city's roads, the developer must perform concurrency mitigation in addition to the "regular" impact fees. This "concurrency mitigation" must bring the predicted level of service within the adopted concurrency standard.

There is no legal limit on the size of this expense to the developer, however the developer must only fund enough of an improvement to bring the level of service within the adopted standard. (Note again that this mitigation is in addition to other impact fees they must pay.) Under the legal statutes, the mitigation must be proportional to the impact of the development. For concurrency, in laymen's terms, "proportional" means "back below the standard and no more than that." (For a more detailed legal discussion of these issues, see Appendix A of the final report for the previous TRAC-UW concurrency report. The appendix is titled “A Brief Discussion of Nexus and Proportionality as It Relates to Concurrency.” This appendix can be obtained from the following URL: http://depts.washington.edu/trac/concurrency/pdf/Apdx_a.pdf

As a result, when a development is desired within an area that already exceeds the concurrency standard or when the trips that development will produce cause the concurrency standard to be exceeded, the mitigation required usually consists of enough funding to build one or more projects that are already in the city’s transportation plan, but that is/are not currently funded for construction within the required time frame. The improvements selected for funding must result in levels of service that meet the adopted concurrency standard. Where no projects can be built that achieve this result at acceptable cost to the developer, the developer chooses to not proceed with the development. (This is the case with most development now in Issaquah.)

In almost all cases, these funded projects are roadway capacity improvements. Roadway capacity improvements are funded because each city relies exclusively on measures of roadway level of service in their adopted standards. Therefore if the adopted level of service standards are not met, roadway capacity improvements are necessary to improve roadway performance to acceptable levels.

It is possible that transit system improvements could be funded that create sufficient mode shift within the larger city/region so that traffic volumes on the effected roadways would begin to meet the adopted level-of-service standards. However, there are considerable risks in such an approach, and the TRAC-UW project team is unaware of any developer or city having adopted it or even seriously considered it.

<u>Identification of specific multimodal transportation improvements and strategies and the extent to which these investments are reflected in the local comprehensive plan.</u>

All four cities describe in their transportation plans the infrastructure that is needed for multi-modal transportation services. These facilities include bike trails, sidewalks and other pedestrian amenities, park and ride lots and other transit facilities. In addition, each city's planning documents discuss, to one degree or another, the need for multi-modal transportation options. The degree to which the cities transportation plans, comprehensive plans, and concurrency procedures are connected varies between jurisdictions.

See the subsection "City-Specific Approaches to, and Uses of, Concurrency" on pages 13 – 18 for more information on this topic.